

The Citrus Industry

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INCREASING PRODUCTION CALLS FOR PLANNING

According to a recent report by J. C. Townsend, Jr., statistician for the Florida-U. S. Bureau of Agricultural Economics, citrus groves in Florida are coming into bearing at the rate of 6,000 new acres every year, and bearing groves reached a total of 377,450 acres in the state during the 1943-44 season. Last year's acreage of bearing groves was placed at 371,650 acres.

New groves also are being planted at the rate of 10,000 to 15,000 acres per year according to Mr. Townsend. Impact of the new acreage will be felt in about five years.

Most of the acreage coming into bearing is represented by oranges, with an approximate increase of 5,000 acres this year, with about 1,000 acres in grapefruit. Tangerine and lime acreages remained stationary at 23,420 acres and 7,500 acres respectively.

With this vast increase in groves coming into bearing each year, and with a still greater increase from newly planted groves in the offing, growers naturally are wondering what the future may have in store when government purchases for the armed forces and lend-lease comes to an end.

Of course, Florida citrus growers were confronted with this same worry over increased production twenty-five years ago, when many believed that we were faced with the problem of over-production. However, growers overcame that problem and lived through the period of national depression to enjoy during recent years a period of prosperity unknown in years of limited production.

But the fact remains that there will need to be a very considerable readjustment when peace again comes and we are faced with the problem of marketing a greatly increased production with no artificial aids from the government. If, when that time comes, growers will get together and act with the same unanimity of purpose which has characterized their efforts under wartime conditions, we believe that they will meet the new conditions as successfully as they have met other adverse conditions in the past.

But these new conditions will demand the united efforts not alone of Florida growers, but of growers of California and Texas as well, for those states also are increasing acreage, and with it produc-

tion, which must be reckoned with in any effort to solve the problem of marketing an ever increasing production in the face of restricted Federal aid.

In this situation, The Citrus Industry sees the need, as it has seen and expressed the need for the past twenty-five years, of a national organization of citrus growers embracing the growers in all of the citrus producing regions of the nation. The growers of each state acting through state organizations may help to alleviate the conditions, but to really solve the problems common to the growers of all sections, there must of necessity be an over-all organization to expand consumption and control distribution.

Other business interests are now planning and preparing for reconstruction when peace comes. They are not doing this piecemeal but through vast organizations covering a wide range of territory. Citrus growers should do the same — if they are to hope to meet new conditions with any degree of success they must do it through an extensive organization covering all citrus producing sections, for in the final analysis their interests are common and their problems of similar nature — and now is the time to plan and organize.

CITRUS CEILINGS REMAIN UNCHANGED

Robert C. Evans, secretary-manager of the Florida Citrus Commission, recently returned from Washington, has announced that ceiling prices on fresh Florida oranges, grapefruit and tangerines will remain the same as last year. The meeting in Washington was in the nature of a conference of the Fresh Fruit and Canners advisory committee from Florida, Texas and California with OPA and War Food Administration officials.

There was little inclination to disturb last year's ceiling prices on fresh citrus fruits, but there was a distinct inclination to lower the ceiling prices on canned orange and other citrus juices, but on this point no action was taken at the meeting, although the advisory committee strongly advised the retention of last season's prices. This matter is now under consideration by the Federal authorities and a decision is expected before the beginning of the shipping season.

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ARMOUR'S BIG CROP FERTILIZERS MADE FOR YOUR SOIL AND CITRUS

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We strongly urge all growers to see their Armour Agents at once, order and take delivery as the fertilizer is ready. This is important to relieve congestion in manufacturing, transporting and storing. It will help you to get the fertilizer you need now, and help to guarantee your future requirements as well.



ARMOUR FERTILIZER WORKS

JACKSONVILLE, FLORIDA

A Special Growers' Set-Up For Irrigation

JAMES C. MORTON, AUBURNDALE
At Meeting Florida State Horticultural Society

This is a true story, briefly told, of a group of growers who banded together co-operatively to provide themselves with an irrigation plant to take care of their groves during periods of drought.

These groves, now sixteen in number, and totalling 205 acres of bearing trees, are situated in the high sand hills of the ridge area of Polk County, with no lake nearby from which they could be irrigated. Groves in this cooperative are not all contiguous and the longest irrigation lines are nearly a mile in length.

Several periods of drought had proved almost disastrous and, in some of the groves, trees had actually died from lack of moisture. The situation was such that, among those who knew the area best, it was frequently referred to as "the dust bowl."

Because through several seasons crops had been lessened, some trees had been killed and most trees seriously damaged from lack of ample rainfall, a meeting of interested growers was held during a severe drought early in 1939 and developed the following conclusions:

(1) Irrigation for that particular section had become an absolute necessity, and in most years full and profitable production was impossible without it.

(2) Elevation and distance from the nearest lake made irrigation with lake water a practical impossibility, because of static and frictional head.

(3) Water would have to be secured from a deep well, to be drilled on a location as central as possible to the participating groves and on property owned by the cooperative.

(4) No one of the group had sufficient acreage to warrant the expense of putting in an independent plant to serve his own needs, and it would have to be done co-operatively if done at all.

A committee was appointed to make a survey of the situation and provide a per-acre estimate of the cost.

This committee, after an earnest study of the subject and consultation with leading irrigation and pump experts within the State, reached the conclusion that what was worth doing was worth doing well. That in an irrigation plant properly installed with well, pump and pipe ample in capacity, the labor cost would be much lower than where make-shift equipment is used. That there would be slight difference in cost between an efficient and an ineffi-

cient plant. That whatever additional cost was necessary to make the plant fully efficient would be returned many times over in economy of operation and satisfaction in service.

The report to the growers was that a plant sufficient to their needs would cost in the neighborhood of \$60 per acre — perhaps a few dollars over and perhaps a few dollars less.

Necessary contracts were drawn up between the individual grower members and the newly chartered cooperative, in which the estimated funds were guaranteed by the membership on a per-acre cost basis. It should be remembered, of course, by any group contemplating a venture of this kind, that costs are proportionally related to the number of acres participating and that every additional grove will reduce the per-acre cost of the installation; however, care should be exercised that the number of acres associated is not too large for efficient irrigation during periods of drought.

Organization of The Ridge Cooperative was completed on March 15, 1939, and a committee appointed to carry the program through.

Five acres of land centrally located were purchased, on one corner of which the well was drilled and pump house and shed to contain the pipe and truck were erected. The balance of the land was cleared and planted in citrus grove which will soon be returning revenue to the cooperative.

A large wooden tank was purchased second-hand and elevated on concrete supports. This tank furnishes water by gravity to fill spraying equipment. Water previously had to be hauled nearly two miles and up very steep grades. Water from this tank is sold to all who wish it at \$1 per thousand gallons.

The total cost of the installation follows: The well (723 feet deep), together with pump, motor and fittings, including installation and the transformers necessary to reduce the current from the high voltage line to the 2300 volts used by the 75-h. p. motor, cost \$4,319.61. Portable pipe, including the necessary sprinkler fittings, totaled \$5,749.54. A good second-hand truck (used for handling portable pipe) cost \$470.68. The wooden tank, which was bought second-hand and erected near the well, cost \$611.66. House for pump, pipe and truck, \$538.45. Culverts under highways, \$67.80. With the cost of the land, this makes a total of \$12,772.57.

It has been found in this installation

that electricity, readily available, was a more practical source of power than either gasoline or diesel fuel and required much less attention. Using double-line method of irrigating, the electric motor is started in the morning and runs continuously without need of attention. The pump has a 10-inch discharge and a capacity of between 800 and 900 gallons per minute, depending upon the distance to which water is being pumped and consequent variation in frictional head. All sprinkler pipe is 6-inch, and 8-inch portable lines are used for mains. These large size pipes reduce friction and are economical on power.

Efficiency in operation depends largely upon competent supervision, taking full advantage of terrain and location of all groves, in having as much acreage as possible serve with one setting of main lines.

Groves in this particular unit are given approximately 2 inches of water at an irrigation and it takes about 12 hours to irrigate a 10-acre grove. When labor was plentiful, the work was continuous, with day and night crews, and acreage was covered in less than two weeks' time. At present, because of shortage of labor and inability to get batteries for the headlamps used by the men at night, the time for covering the acreage has been practically doubled.

The Ridge Cooperative (for irrigation only) has been a sound investment for the growers associated with it, who have their groves watered more effectively and economically than they could possibly have them with an individual irrigation plant. Crops are assured, tree health and vigor are maintained and pruning expense curtailed.

Some growers may be hesitant about making investment in a cooperative of this character, feeling that irrigation would not be needed during years that ample rains fall. The answer to this is that in years of sufficient rainfall, the expense of irrigation is avoided, and yet the plant is there for insurance against periods of drought and drought periods may in many instances (where irrigation is not available) result in loss of crop, loss of future bearing wood, and expensive pruning, and sometimes loss of trees.

Grower members of The Ridge Cooperative, for irrigation, feel that they have taken care of their irrigation problem cheaply and effectively. In closing, let me make it clear that membership in the irrigation cooperative goes with the grove when ownership changes.

Heavy Expansion In Consumption of Citrus Fruit Juices

In anticipation of a record-breaking demand for canned citrus juice during the coming season, Florida Citrus Canners Cooperative at Lake Wales, is doubling the capacity of its juice producing facilities, it was announced recently, when the new additions are completed, around mid-October, the plant will be able to handle an annual volume of 4,000,000 cases of canned citrus juice.

In addition to this tremendous volume of single-strength juice, the cooperative is also planning to handle a pack of over 750,000 gallons of citrus concentrates during the 1944-45 canning season. This will be approximately the same amount as was put up last year.

This increased volume of business, Co-Op officials said, is due in no small measure to the efforts of Dr. J. L. Heid, head of the cooperative's experimental and research department, who has been able to improve greatly the flavor and quality of the canned juices and concentrates.

Dr. Heid, however, is not content to rest upon his laurels. Instead, he is to be found every day in his office and laboratory at the plant, hard at work upon new experiments which, when completed, will increase the salability and the general range of citrus juice, concentrates and their by-products.

Canned grapefruit juice, in so far as the cooperative's production of it is concerned, is still a much more popular item than canned orange juice, Dr. Heid revealed, but in the field of the concentrated product the orange concentrate leads by a wide margin.

Blend (that is, a combination of orange and grapefruit juice) is coming rapidly to the front in the single-strength product, and with its general acceptance, six varieties of canned citrus juice are now being shipped; orange, grapefruit and blends in both sweetened and unsweetened mixtures.

Dr. Heid is especially pleased with the great strides which have been made in the improvement of canned orange juice. He sees a

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Concentration Of Citrus Juices By Freezing....

A. L. STAHL, Associate Horticulturist
Florida Agricultural Exp. Station, Gainesville
At Florida State Horticultural Society Meeting

Florida's citrus production is increasing by leaps and bounds and, to avert a catastrophe after the war, research workers are called upon to find ways and means, other than by fresh fruit sales, of utilizing the over-production. Ways are being sought which will give wider and more even distribution and consumption of Florida's one hundred thirty-eight million dollar a year citrus crop.

One of the outstanding and most promising efforts along this line is the search for better methods of concentrating citrus juices. Everyone is striving for a preserved citrus juice which has the taste, appearance and nutritional value of fresh juice. This paper is a report of such a research which concentrates the juice by freezing and centrifuging, resulting in a product far superior to that obtained by any other method, thus making it possible to offer fresh Florida citrus juices for sale 12 months of the year. It is proposed in this paper to examine how nearly the method of concentration by freezing out the water does approach the ideal in the case of citrus juices. A comparison with the normal method of evaporation by heat will make apparent the advantages of the freezing process.

The concentration of a solution is carried out by conversion of water to a phase other than the liquid, which phase is then removed. In heat evaporation it is converted to the vapor phase—steam, and in freezing, to the solid phase—ice. The conversion to vapor requires some 560 calories per gram and that to solid only 80 calories per gram,

and this shows one theoretical advantage of the freezing method; that is, the energy required for the withdrawal of the same quantity of water is about one-seventh. The temperature of evaporation is, at normal atmospheric pressure, 100°C. and this may be lowered by the use of vacuum to a workable limit of 40° C. Freezing concentration necessarily occurs at temperatures below 0° C. This difference is obviously of great advantage in dealing with heat-sensitive substances and citrus juices are very heat-sensitive. The reduction of evaporation temperature by using vacuum may assist in the concentration of heat-sensitive substances, but does not help in the case of solutions containing volatile constituents; in this field, concentration by freezing is supreme as freezing does not drive off the volatile substances which give the taste and bouquet to the juice, as does heating. The removal of the vapor phase from solutions liable to foam can cause exceptional difficulties and, although these have been overcome in various evaporators, the apparatus required is complicated and expensive. The fact that citrus juices are liable to foam does not create any special difficulty in the removal of the solid phase or ice in the freezing method. A consideration of these advantages mentioned will show why the freezing method is particularly suitable for citrus juices. In these, the flavors are largely due to organic bodies of high volatility, the sugars and acids they contain are liable to decomposition on prolonged heating and the pectin substances make them

viscous and liable to foam in concentrated form.

It has long been the practice in certain districts in Europe and America to place small casks of fruit and wines out-of-doors on nights when very low temperatures are expected, and to draw off later the liquor from the central core. The soluble portions of the wine would be concentrated and a sweet liqueur type of product obtained. This simple example affords an idea of the principles of freezing concentration. We have improved on this method by obtaining a complete separation by various ways of freezing and centrifuging. When water containing a dissolved solid substance is progressively cooled, pure ice is formed at first and the concentration of the dissolved substance in the liquid phase increases until saturation is reached. At this temperature, which is known as the eutectic point, ice and dissolved substance solidify together until the whole mass becomes solid.

Several different processes have been evolved to carry out the ice formation and its subsequent separation in a controlled manner.

In all of the investigations, the juice was extracted by slow reaming in such a way as to include the least amount of rind oil and other substances from the tissues, other than the juice sacs, which would produce bad tastes in the juice. Directly as it was extracted the juice was run through an 18-mesh sieve and into a vacuum where the juice was completely de-aerated. This single

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The Farm And Grove Machinery Situation

H. G. CLAYTON, Gainesville, Chairman,
Florida War Board U. S. Dept. of Agriculture
At Meeting of Florida State Horticultural Society

It might be well to very briefly outline the farm machinery program as a background for some comments on the machinery situation.

Description of Machinery Program

Each year there is obtained from each county an estimate of the minimum amount of each kind of machinery needed in order to carry on essential production. These estimates are compiled by states and in this way county over-statements and under-statements tend to offset each other. The state totals are then examined and any needed adjustments are made and the totals are then forwarded to Washington with certain comments and facts to support the figures.

In Washington the War Food Administration compiles the state reports into a national estimate. Here again, over and under estimates tend to offset each other. The War Food Administration then on the basis of these estimates, together with other data and with due consideration of the production goals, presents to the War Production Board the estimated machinery needs. The War Production Board has military and other claimants for materials, and on the basis of all the facts including the needs of the various claimants and the amount of material and facilities available makes an allocation for Agricultural Machinery and for some of the same machinery for industrial use. These totals are then broken down by items into percentages of the production during 1940 and 1941, and each manufacturer is permitted to build this percentage. Small producers can use 100 percent for any item but their total production for all items cannot exceed 100 percent of their total 1940-1941 production. For some items the percentage will be zero, for others a small percent and some others will get a percentage of 100 or even above this figure. Certain items are bracketed and a manufacturer can use the material for constructing any of the items within the bracket. The War Production Board limitation order L257 contained 19 groups of machinery items ranging from leg bands for poultry to tractors. There was no quota restriction on repair parts. Each manufacturer then furnishes WPB with a production schedule showing the number of items of each kind of equipment he proposes to make out of the allotted material. These schedules are reviewed and approved, or adjusted and then approved. In the course of a year certain adjustments must be made, as some manufacturer may find he cannot carry through his schedule and others find

they can build more items if their materials quota is adjusted. An effort is made to make adjustments between such manufacturers to secure the scheduled production. During the year the supply of certain materials because of war needs may change or the military forces may take a notion they want all the tractors of one size or kind that are available and of course they get these.

Distribution of Farm Machinery

Distribution of Farm Machinery is now provided for under a series of supplementary order to **Food Production Order 14**.

The more important agricultural machinery, for distribution purposes, is divided into three classes or schedules. Most of the small items are outside of these schedules. Schedule I contains 17 items which include wheel type tractors, planters, manure spreaders, power sprayers, corn binders, tractor and horse drawn and tractor mounted mowers, side delivery hay rakes, combines, etc.

The manufacturer makes up a distribution pattern for 80 percent of his production broken down to states and to counties. Within a state there is opportunity to make adjustments up to 10 percent in the pattern. Twenty percent of the total production is set aside for a national reserve and this is later distributed to states to equalize the distribution pattern and to care for special conditions. Some of the reserve is also used for export to our possessions and for other uses. In each state all of this reserve is distributed to the counties and none can be held as a state reserve. Each county has a quota which is broken down into makes of equipment for each Schedule I item. All items in Schedule I are rationed by the County Farm Machinery Rationing Committee which serves without pay. This committee cannot issue more certificates than its quota for each item. The farmer files an application and the committee considers the applications and then issues certificates to the farmers who will make the best use of the equipment toward meeting the county production goals. The farmer takes the certificate to his dealer or some other dealer who can furnish the equipment.

Now let's consider Schedule II items, which consists of 13 types of equipment such as listers, middle bursters, portable elevators, garden tractors, milking machines, milk coolers, water systems, power pumps, windmills, irrigation pumps, etc. We have about the same provisions with respect to distribution down to state levels as we had

for Schedule I items. However, there are no county quotas. The farmer locates a dealer who has or determines he can get the equipment, then he files an application with the County Farm Rationing Committee and if his need justifies, they issue him a purchase certificate.

Then we have Schedule III equipment which now contains only 7 items: beet and bean drills or planters, disc harrows, rotary hoes, grain binders, feed grinders and crushers and water distribution equipment such as portable pipe, valves, sprinklers, and gates.

There are state quotas for this equipment, with the manufacturer distributing 80 percent, and the 20 percent reserve is either distributed by Washington or released to the manufacturer for his own distribution. These items are not rationed and can be purchased without restriction so long as they are available.

The purpose of this program is to obtain equitable distribution down to state, county and even to individual farms for certain critical items.

New metal milk cans and covers, pressure cookers, farm scales, and sheet metal water-well casing are each distributed from manufacturer to user under special regulations which I will not discuss. Then there is another list of items which includes small tools like axes, picks, fencing, shovels, hoes, rakes, trace chains and a long list of items that are distributed through regular trade channels with certain distribution requirements to get equitable distribution of the quantity manufacturers are permitted to build. There are no state or county quotas and these items are not rationed except as the manufacturer makes distribution down to dealers, and of course dealers can only sell the quantity they are able to purchase.

Supply Situation

Now let's trace the supply situation in more detail.

Right after Pearl Harbor manufacturers of farm machinery operated under WPB limitation orders of the L-26 series. During early 1942 considerable amounts of agricultural machinery were in manufacturers and dealers stocks.

You will recall that in September of 1942 all farm machinery was frozen until a rationing program could be worked out. This caught Florida in the fall when winter production plans were getting under way. Some of you growers will remember the hectic situation with respect to irrigation pipe and pumps during the November

October, 1944

drought of 1942 until Washington could authorize me to release the frozen stocks of irrigation pipe.

Beginning October 19, 1942, farm machinery manufacturers operated under Order L170 and were permitted to build about 23 percent of the 1940-41 production. Manufacturers were divided into A, B and C classifications: A—small, B—medium, and C—large producers. Certain items could not be manufactured at all under this order. Many of the larger companies were switched largely to war production. This program meant some machinery with no dealer set-up would have to be used in places where it was unknown. The materials were not actually allocated until about January. Later allocations were increased to about 40 percent of the 1940-41 production.

Distribution of the above machinery was made by War Boards under temporary rationing orders A, B and C — later changed to Food Production Orders 3, 4 and 5 with various amendments and supplementary orders, with a large number of rationed items.

In 1944 we will get about twice as much new equipment in the aggregate as we secured in 1943, (80 percent compared to 40 percent). Much military construction work has been about completed and the military forces have obtained great quantities of equipment that used critical materials, and this tends to make available more steel and other items for use in building farm machinery.

In 1945 manufacturers will be permitted by WPB to build increased quantities of farm machinery because the material situation is easier and WPB considers agricultural production essential and realizes that agriculture needs more farm machinery. Of the 174 principal items of farm machinery, an item count indicates that only for five items will production be decreased for 1945 from what it was in 1944, and in three of these cases the implement involved is the smaller size and off-setting increased has been made in the larger sizes. For all other items the production authorized will equal or exceed that authorized in 1944. Substantial increases have been made for 104 items. Among items of interest to you, portable pipe is up 1/3, tractors 1/5, and centrifugal, power, and turbine pumps 3/5.

Florida has done pretty well for most items in the amount of farm machinery obtained and yet to be delivered, when the national quotas are considered. We have not secured all that was needed or all that some people wanted and had the money to buy. Some items customarily used were not manufactured at all, where WPB established zero quotas. There was also a situation to meet where, due to labor shortages, some farm operators wanted to mechanize and there was just not enough machinery to do all this that was desired. One thing to be considered is that we had the greatest agricultural production in history in 1943 —

THE CITRUS INDUSTRY

Seven.

somehow with the machinery available this was produced and harvested. A good deal of machinery in 1943 did not arrive in time for spring crops but was available for fall crops and is here for spring crops in 1944.

For 1943 the WPB allocations were not made until January and these allocations

were very small, 23 percent, and were later increased to 40 percent. The result was that manufacturers were late in starting to make farm machinery and much of it was too late for the early states. For 1944 allocations were made in July of 1943, which was

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NOT AGAIN...this year if YOU'LL HELP!

Fertilizer deliveries last Fall and Winter were too often delayed because of labor shortage and other reasons beyond our control.

To be sure you have your fertilizer on hand when needed, we urge you to arrange for delivery of as much of your required tonnage as you can properly care for until time for applying it to your trees or crops.



Your cooperation will help us help you avoid delays and disappointments.

NACO FERTILIZER COMPANY

JACKSONVILLE 1
.... FLORIDA

The Farmer Goes To Town

Yes, the farmer goes to town. He has to—that's where the ration board meets. And he takes his wife with him; he wants to, fortunately. They planned to leave home right after breakfast, but didn't get away 'til nearly eight o'clock—~~ry~~ had to wash the dishes. Katie didn't show up last Sunday. She sent word Wednesday that she had to go see her Auntie and should she come back next Monday? (Let's hope Katie is sober by Monday.)

He already has his coat on, and it must be going to rain, it's so hot and sticky. He has been ready for a long time now, and has said so more than once, but she can't find a pair of stockings that match without a run. "Where is that kodak picture of Junior in his uniform, to put in my letter to your mother?" The farmer loves his mother but usually leaves it up to his wife to write to her.

He is still ready to go and she is ready too, now, so "Fred, why didn't you put these windows down while you were waiting?"

Well, as we said before, The Farmer Goes to Town. They drive out past the wood pile and are on their way.

"Turn on the radio, Fred."

RADIO: "To grant farmers the price increases demanded by certain selfish farm groups would cause a disastrous spiral of inflation. To meet their demands would mean increased food prices which, in turn, would justify the inevitable demands of Labor that the Little Steel Formula be abandoned. We must and shall hold the line. The avarice of the greedy shall not oppress the needy. Farmers must not be allowed—" CLICK. That click is where the farmer turned off the radio.

They left the car behind Sears Roebuck's and planned to meet back there at four o'clock. The farmer thinks over what he has to do. (Have to get home by milking time. That sorry boy, Jean, hasn't showed up all this week. Mr. Cobb says Jean is making 80c an hour picking up palmetto chunks at the new airport. Of course he can't afford to milk cows.)

"Well, remember, four o'clock sharp." (Let's see now, I've got to see about a tractor hitch, and arrange for some soda, and see the County Agent about some dolomite, get those plow points and go by the ration board. A piece of beefsteak would go good tonight. Wish I had a cut off that steer I sold Jim. Twelve cents a pound is pretty good for a grass-fat steer. Maybe I did cause a little inflation on that deal. Here's Jim's butcher shop now.)

"Mornin', Jim. How about a steak off of that steer I sold you?"

"Sure, Fred, a nice porterhouse cut. That will be seventy cents a pound."

FERTILIZER AND CITRUS

Just how important a part fertilizers play in the production of Florida's citrus crops may be seen by an analysis of the fertilizer used in Florida during the fiscal year ended June 30, 1944.

Of the 647,074 tons of mixed fertilizer used in the state according to the reports of fertilizer manufacturers, a total of 496,775 tons were used in counties comprising what is recognized as the Florida "citrus belt." Many additional thousands of tons were used on citrus plantings in counties not generally considered in the "belt."

In addition to these mixed fertilizers there were used in the state a total of 109,447 tons of fertilizer materials applied as unmixed materials. Of this grand total 78,926 tons were used the counties of the "citrus belt."

Thus it will be seen that the citrus producing counties consumed by far the greater part of the total fertilizer consumption of the state, and how important a part fertilizers play in the production of Florida's superlative citrus fruits.

(Lord have mercy—I sold it to him for 12c on the hoof. Quite a spread between 12c and 70c.)

Coming out of the butcher shop he met a candidate whose face seemed familiar.

"Hello, Fred, old boy. Put 'er there, Pal. How are things looking out your way for Oscar Zilch, the farmers' friend? Here, take some of my cards. And how about coming to the City Hall tonight for the big rally?"

"Can't do that, I have to get home to milk." But he takes the cards. (That fellow is getting fat—but then I haven't seen him for four or five years. That youngster over there looks like Charlie Cobb's boy who farmed the Smith place last year. I hear he is making \$100 a week at the shipyard.)

Next, Fred met his old friend, the editor of the weekly paper, who said, "Fred, I have a lot of stuff that came to our paper today from some government agency trying to sell our readers on the roll-back food subsidies which I understand you Farm Bureau members don't like. Would you

mind telling me why you are afraid of this kind of consumer subsidies?"

"Well, for one thing," said Fred, "we don't trust the motives of the people who hatched up the idea of subsidies, nor the judgment of those who would administer them, nor the willingness or ability of any administration to discontinue subsidies after they have been widely used to pay a part of people's grocery bills."

"All that farmers want is just a good fair price for what we sell, but we want that price when we sell, so we can walk down the street with independence and self-respect, not just a part of the price at selling time and the rest later in the form of a supposed gift to farmers from the government."

"We know it is mighty seldom that all the right is on one side and all the wrong on the other side of any question, and we know there are some families in this country who have had no increase in income and are being pinched, but we think it would be better to give those relatively few families some free food stamps than to use their condition as an excuse for paying a part of the grocery bills of 132 million people, 90% of whom are making a lot more money than they ever made before."

"We just think it is a mighty dangerous thing for our government to borrow more billions of dollars and spend it to buy votes with."

The Editor said, "Fred, you are right." Meantime, Mrs. Farmer is in the Fair Store to buy a purse and a piece of gingham, if she can find a clerk. "How much is this gingham, please?"

"A dollar and a half a yard."

"My, how dress goods have gone up. I paid 69c a yard for this same quality two years ago. Isn't there a ceiling on these prices?"

"Yes, but this is a new pattern; we didn't have it before, and this is the last we can get."

"Well, I have to have 3½ yards, and some insertion."

"We don't have any insertion but here is some crocheted lace, at 50c a yard."

"My goodness, it used to be a nickle a yard before the ceiling went on."

"But we didn't have this type of lace then."

Fred saw some cucumbers in a sidewalk display.

"Ten cents each. Let's see, that would be about \$12.00 a hamper. The ceiling on mine to sell is \$5.00, and drops to \$3.40 on the 29th. Glad I'm selling them on the 26th, what few didn't freeze out. Quite a spread between \$3.40 and \$12.00, and the

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JOHN FORI
Florida Farm Bureau, Orlando
At Meeting Florida State Horticultural Society

HEAVY EXPANSION IN CONSUMPTION OF CITRUS JUICES

(Continued from page 4)

great future for the product as its base acceptance is ever-widening, and he declared that the Cooperative was going to make a strenuous effort to obtain a commanding position for its product, already famous under the "Donald Duck" brand in the beverage business.

As an example of what can be done with the canned orange concentrate when properly handled and re-hydrated by a first class beverage man, Dr. Heid pointed to the case of the fellow who runs the orange juice stand at Buckingham Field, Fort Myers. Under his skillful re-hydration of the product, orange juice has become the most popular beverage at the field. The soldiers, who drink just about all that he can produce for them, were amazed when they learned that what they were drinking was not orange juice freshly squeezed from the fruit, and some of them still refuse to believe it.

Properly re-hydrated, orange concentrate contains all of the food value and rich flavor of the fresh fruit itself and it can be properly called "reconstituted orange juice," Dr. Heid said.

In order to make sure that the concentrate is re-hydrated in proper fashion, the cooperative's field force is prepared to take the time and make the necessary efforts instructing jobbing and even some of the large retail outlets in the correct methods of preparing the product for consumption.

The packing plant had a pay roll of close to a million dollars during the past season and it is expected that it will go well over this figure during the coming year.

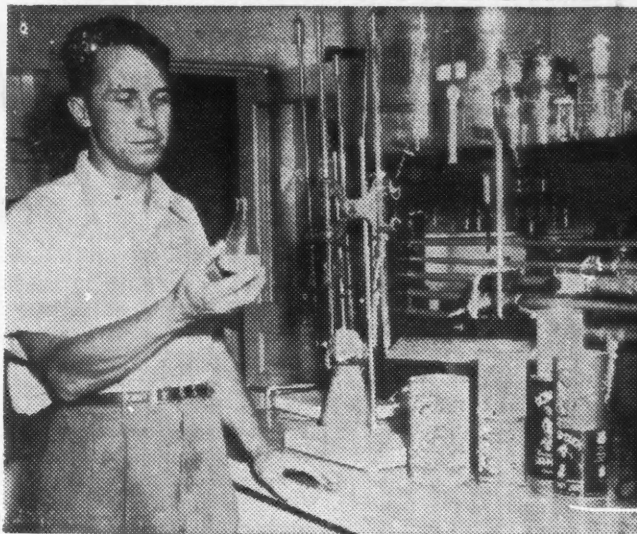
EDITORIAL (Continued from front cover)

CEILINGS SET FOR CITRUS WORKERS

L. H. Kramer of the War Food Administration has advised citrus growers and packers that maximum wage ceilings become effective on September 1, and that any violations of the regulations will result in penalties, not only against the person accepting a wage above the ceiling, but also against the person paying the extra wage.

Trained citrus investigators will be employed by the wage board to investigate all requests for adjustments in "hardship" cases and to

RESEARCH CHEMIST INSPECTS ORANGE JUICE



Dr. J. L. Heid, head of the experimental and research department of Florida Citrus Canners Cooperative, Lake Wales, gazing with obvious pleasure upon the contents of a flask of cool, delightful canned orange juice which he and the photographer are preparing to sample.

check reported and alleged violations. Small operators are required to keep detailed records, including names and addresses of workers, the kind and amount of work, the wage

rate and the total payments for each period.

The regulations are intended to standardize the wage scale in citrus groves and packing houses.

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You've Gained! . . .**

Dolomite is a superior, long-lasting conditioner which restores acid-alkali balance in the soil, releases "locked-up" plant food and supplies the essential magnesium and calcium your trees need. But even Dolomite will leach from the soil in time.

One application a year is sufficient to keep your groves in shape once you have restored

the soil to top producing condition. *But be sure to make this annual application!* Otherwise you'll lose what you've gained, and it will cost you more to restore soil balance.



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OCALA, FLORIDA

Eddie Finds Indian River Section Interesting Place To Visit . . .

Well, now I've seen everything, as the bride said when her newly acquired husband took off his artificial foot and tossed his toupee on the dresser.

Every since I was so high to a grasshopper I've been hearing about Indian River citrus fruit and last week for the first time I saw it in the process of growing. Until that time it occurred to me that the only real difference between citrus fruit no matter where it was grown was in the advertising it received. And I still maintain that there is a lot to that theory.

On the other hand after the Boss took me to Indian River county and spent two days there going through grove after grove I had to admit that the folks in that section really have something to brag about.

I have seen, during the past few months, several areas where a lot of trees carried larger crops of fruit than any we saw in the Vero Beach and Wabasso areas — but I have seen no finer fruit anywhere than we saw in this area. The skin and texture of the fruit was fine and it is no wonder that about ninety percent of the grapefruit grown in this section goes to the fresh fruit market.

The first place we visited was the Graves Bros. Co., at Wabasso, and here I was able to visualize what the old time Southern plantation was like in its heyday. Mr. Hubert Graves, former member of the state legislature, who incidentally left that position voluntarily, is president and general manager of this firm which has a holding of 500 acres of groves to which are added 500 more acres that the various firm members own individually.

Mr. Graves drove with us through acres and acres of fine groves, where the trees all looked as if they had their Sunday clothes on and the fruit we tested was as smooth as velvet, all of which impressed me greatly, but most of all I was impressed by the immensity of the whole deal. Formerly large sawmill operators in West Florida the Graves came to Wabasso and went in the lumber business there and after they had cleared the land of timber they started planting citrus groves.

This concern owns and operates their own

packing house and commissary, and in this latter place for the first time since we were a small kid we saw hogs heads hanging from the doorway inside the store waiting for some hungry purchaser to take them away.

Everything about the place and in the groves was as clean and orderly as our dining room at home. The grapefruit in many places had already started to color and even now the one we tasted wasn't half bad as to flavor.

Frankly I envied the owners the completeness of their set-up and dreamed just a minute of a time when I might some day have a similar operation.

(I started this thing off all wrong because I failed to mention that as we drove into Vero Beach we stopped at George Cox's place. George represents our Company there and he turned out to be a swell fellow — and he was with us, or we were with him, all the rest of the time of our stay.)

Next we drove over to the 90-acre grove of T. A. Vincent. It was all in seedless grapefruit and like all the other groves we visited the trees were loaded with fruit and as in the case of practically all the others all this grapefruit has first claim on the fresh fruit market.

Both in this grove and in the Graves grove the owners took pride in showing us their Texas Ruby Red fruit which is so bright it blushes right through the skin of the fruit. Both of the owners made the claim that the best grapefruit in the world is grown in this Indian River section and from what we saw we are not in the least disposed to argue about the matter.

Next we went to see Mr. Forest C. Graves and his production manager George T. Young.

The folks by the name of Graves over in this area appear to have a habit of doing things in a big way. Forest Graves once was in the U. S. Department of Agriculture. In fact he was state co-ordinator for that department in Florida in 1934, but all the time he was in the state he was nurturing a dream, which in a little over six years he crystallized into a reality.

The result of this dream is today shown in

a 1000 acres of fine citrus under northern ownership, but directed by Mr. Graves. As are plantings in this area all of those of groves are planted on beds of ditches in between. The trees are of the Polk variety, a close of the Lue Gim Gong, and they really make a picture that's hard to beat.

We drove and drove through grove and it was highly evident which designed this project left imagination. Everything was under. The five and six year old in heavy bearing already and promises to be even bigger the year.

Typical of the care and the operation of this project was an engine pumping plant so that in wet weather the surplus water could be pulled out of the grove back into the large drainage houses for the help, the equipment was clean, neat and in condition. It's small wonder the owners are well pleased with it. One group of 15,428 trees netted last season while another group produced to the extent of \$26, the saying goes, that ain't hay on and on in a sort of rhapsody whole business but they were visited we have to tell about — business is a high trade to be an idea.

John Schuman, editor of the at Vero Beach, another of our was away from home, but his shows the merit of our fertilizers that Schuman is a sound as well as an exceptional news.

On the second morning we some orchids growing at McKens. I can't tell you much about that they were beautiful. My this whole page describing the not that capable.

The Gardens by the way

SUPERIOR FERTILIZERS

G. D. SLOAN, President

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Section A Most

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As are all other citrus
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editor of the Press-Journal
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on fertilizers, which indi-
n is a sound citrus grower
optional newspaper publisher.
morning we went out to see
ing at McKee Jungle Gar-
you much about 'em, except
autiful. My wife could fill
scribing them, but I'm just

the way where thousands

upon thousands of visitors have seen real
jungle land in days past is now being used as
a training ground for navy men who are taught
how to combat the jungle and how to subsist
in the jungle without the benefit of normal
rations.

E. M. Becton who manages the place told us
most interestingly of the many rare and in-
teresting plants we saw during the brief tour
we made of the place and explained how he
expected to still further enlarge his already
large commercial orchid business after the war.
This place is a must for visitors in this section
when it is again opened to the public.

Next we visited Senator A. W. Young, one
of the most interesting gentlemen we have in-
terviewed in many a day. Pretty well along
in years is the Senator, but as full of life
as a two-year-old colt, with a memory which
almost startled us at times, and with a brain
just as keen as the edge of a razor, this
gentleman told us how the development of
Indian River fruit was first started.

Back in 1912 when the development first
began nearly all of the 50,000 acres of land
in that county now planted to citrus was
normally under water, so chief engineer Wm.
H. Kimball, and resident engineer R. D. Carter,
conceived the idea of planting the trees on
beds with drainage ditches in between, all
connected with the large drainage canals which
carried off the surplus water. "The land,"
stated Senator Young, "was worthless without
drainage."

He told us how northern prospects were
brought in by the trainload and that from 75
to 150 persons bought holdings every two
weeks. The drainage system was so effective
that it has become the model for virtually all
similar projects on the east coast.

He told us so many interesting things that
we just simply can't get them all here but
one of these days we are going back over there
and get a complete historical story of the
section and somehow get it published, for it
certainly is one of the most interesting stories
in all Florida's history.

Next we visited the Indian River Products
Co., which Waldo E. Stevens directs, and of

which Dale Talbott is production manager, a
job he has handled with credit for 21 years.
This outfit, too, has 1000 acres of groves which
they either own or care for, 70 percent of the
crop being grapefruit.

Mr. Sexton was out of town at the time
but Mr. Talbott told us interestingly of the
work which his company is doing, mentioning
incidentally that he thought that grapefruit in
that area would be from three to four weeks
earlier this year than last.

Talbott is working with Dr. Webb Young of
Experiment Station on a plan to control the
water level in the Indian River section which
like the rest of the state appears to be reach-
ing too low a level.

He said that the groves were in the best
condition they had been in for five years and
that he anticipated a bumper crop this year.
His company along with several others are ex-
perimenting with the improved pasture pro-
gram and he told how the use of copper in
pasture fertilizer was proving beneficial both
to the pasture and to the cattle.

And speaking of water it was interesting to
note that certain wells all over the section
were providing some of the answer at least
to the growing shortage of surface water,
Senator Young, incidentally, expressing the
opinion that there were 2,500 such wells in
that county alone.

It is mighty hard for an amateur like me to
cover all the things we saw or to tell about all
the people we talked to on these trips, but I
can't close this one without mentioning two
other good customers of ours, the Vero Indian
River Products Co., who handle 175,000 boxes
of fine fruit each year, and the Indian River
Associates who market 125,000 boxes of the
same high class fruit every year.

The Boss tells me that this is the last trip
of the sort I'm going to take for a while. I'll
miss the time out of the office and the pleas-
ure I have gotten out of meeting all the swell
folks I have seen and in learning something
about Florida's fine groves, but after all the
Boss is the Boss

EDDIE.

FERTILIZER COMPANY

Chairman, President

Headquarters at 47th St., Tampa, Florida

P. O. Box 1021

CONCENTRATION OF CITRUS JUICES BY FREEZING

(Continued from page 5)

strength juice contained from 10 to 12 percent of soluble solids. The juice concentrated by this method possessed a richer fruit flavor than that previously obtained by any other known process because no volatile flavors or aromas are lost and the chemical changes liable to occur during concentration are reduced to a minimum.

In our investigations two methods were used of applying the theory of concentration by freezing out water from the juice. The first may be described as a simpler method in which a certain proportion of ice was frozen out of the juice, the crystals being allowed to form in disorderly arrangement, and the resultant "slush" placed in a centrifuge and whirled at moderate speed and the concentrate separated from the ice. The "slush" could be produced by freezing the juices in batches, or having continuous freezers into which juice was fed to displace the frozen "slush." The second is that of freezing the juice solid or nearly solid and then mechanically shaving or crushing the frozen mass by an ice crusher and placing in the basket of a sugar centrifuge operated at a moderate speed. The liquid phase finds its way through the perforations in the basket and is collected, the ice remaining behind and later being scraped out of the bottom of the centrifuge and discarded, or used in precooling of the juice. This operation can be repeated until the desired concentration is reached. Each successive freezing and centrifuging more than doubles the concentration.

The efficiency of the separation depends on the method of freezing. The larger the crystals, the better the separation. When the slush is composed of large crystals, the separation of ice and mother liquor can be effected without great difficulty, as the large crystals are completely held back in the perforated centrifuge basket and the concentrated mother liquid thrown out into the outer shield from which it drains through a spout and is collected. The liquid phase after the first spinning operation contains from 25 to 30 percent soluble solids, and after the second, around 48 percent soluble solids, which is 4 times that of single strength juice. The loss from each spinning is around 2 percent, giving us a loss of from 2 to 5 percent for the juice concentrate of 48 percent solids. The centrifuge was usually operated at a speed of around 2500 revolutions per minute and for 3 minutes duration.

Orange, tangerine and grapefruit concentrates were kept for 2 months at ordinary room temperature and at refrigerated temperatures will keep from 4 to 6 months without spoilage, but more change is detected in this juice than in that which is kept in a frozen state. In the frozen state very few changes occur and after 22 months

of storage of Valencia orange samples four times concentrated with a brix of 48, the vitamin C content is still 85 percent of that of the original juice, there being no changes in acidity, taste or color, and it cannot be distinguished from fresh juice. We have found that a juice made up to a 48 brix concentration, which is 4 times the concentration of single strength juice, is ideal. At 0° F., which is the temperature of most commercial and retail frozen storage compartments, this concentrate has the consistency of ice cream. It is packaged in measured amounts and stored in air-tight packages of paper, cellophane or pliofilm. To this block of frozen juice is added a measured amount of tap water, equivalent to that removed from the juice, and immediately the frozen concentrate is thawed by the tap water and the whole mass is cooled down to the temperature most desired for a refreshing orange drink. This reconstruction takes only a few seconds, which gives this method of concentrating another big advantage over the other methods and especially that of single strength frozen juice. One big disadvantage of single strength frozen juice is that it takes so long to thaw, while with the frozen concentrate the reconstruction can be accomplished immediately, requiring no ice for cooling.

Another advantage of the frozen concentrate of 48 Brix is that it can be used to advantage by the sweet shop and fountain operators. A measured amount of the concentrate can be scooped into a glass and tap water added to produce a cool, refreshing fresh orange juice at once.

This method of concentration was found to be adapted to all types of citrus juices. It does equally well with orange, grapefruit, tangerine, Temple, lime and lemon juices. In the case of lime and lemon juices it is not necessary to hold these in freezing storage, as the acid concentration is high enough to keep them from spoilage even if held at room temperature.

The best orange concentrate was made using Pineapple, Valencia and seedling oranges. The seedy varieties of grapefruit gave a better concentrate than the seedless varieties. All varieties of limes and lemons gave a good juice concentrate.

The freezing method of concentration when practiced as outlined here approaches closely the ideal. The concentration cannot be taken to a degree higher than the eutectic solution which is around a soluble solids of 60 Brix for citrus juices, eutectic solution, which is around a soluble solids begins to come out of solution. For concentrations below 60 Brix, this process is ideal because no physical or chemical changes are caused by the method and the losses are very low. The superior flavor, color and nutritional value of the juices as compared with those concentrated by heat, and the economic advantages of the reduction in bulk, the ease of reconstructing, the absence of refuse, the very small loss

in manufacturing and the removal of the necessity for storage in some cases make them very desirable products. The process involved may be expected to be improved and refined, and more knowledge of the requirements necessary to produce an even better concentrate obtained by research on a commercial scale. A pilot plant is now being set up at the Agricultural Experiment Station in Gainesville, in cooperation with the Florida Citrus Commission, for this purpose. A wide-spread adoption of citrus juice concentration by freezing is predicted.

THE FARMER GOES TO TOWN

(Continued from page 8)

radio said farmers are causing inflation!"

They met at 4:30, got some air in a soft tire and headed the old car for home.

"Well, how did you get along today, Mary?"

"I spent the afternoon with Sister, rolling bandages for the Red Cross. This morning I got material and buttons for a dress, but the only pocketbook I would have was marked \$12.00 plus tax, and my eggs only brought 26c a dozen so I didn't buy the purse. How did you come out, Fred?"

"Well, the buyers wouldn't pay but \$3.40 for the cucumbers. I guess we can't blame them, tho, because the break in OPA prices is effective both here and at New York at the same minute, just three days from now. The buyers can't afford to pay us the \$5.00 ceiling here and sell on the basis of the \$3.40 figure that will be in effect by the time these cukes can get to terminal markets.

"Thought once I was on the track of a family to move into the tenant house and help us on the farm, but it seems the wife doesn't like the country, and he is afraid he would lose his compensation if he went to work.

"I couldn't get the soda or the plow points or the tractor hitch, and I have to get up some more information and go back Monday to see the ration board."

Then Mary said, "Pretty discouraging, isn't it, Fred. All the time I was looking at prices and things in the stores I kept thinking about that man on the radio this morning talking about farmers causing inflation. I'll bet the farmer who raised the cotton for this gingham didn't get three cents for enough to make a yard that sells for a dollar and a half. There's quite a spread between three cents and a dollar and a half. And Fred, did you ever think about the fact that every time a man sends a shirt to the laundry it costs him twice as much as the farmer got for all the cotton that went into the shirt? It's right discouraging to do the very best you can and still be called greedy. I'm sorry you couldn't get so many of the things you need to farm with."

(Concluded Next Month)

Dr. E. W. Berger, Prominent Florida Entomologist, Dead After Long Service To State

Dr. Edward W. Berger, an outstanding figure in Florida agriculture for more than three decades, died August 24th at his home in Gainesville after a brief illness. He was 74 years old.

Recognized as one of the country's leading entomologists, Dr. Berger served as Florida Experiment Station entomologist from 1906 to 1915 and also as the first state nursery stock inspector from 1911 to 1915, and became entomologist with the Florida State Plant Board on its creation April 30, 1915. He served as Plant Board entomologist until January 31, 1943, when he was retired from active duty.

His research won him international fame, particularly in the field of entomogenous fungi. He was awarded a silver medal in 1912 for his exhibit of entomogenous fungi at the Royal International Exhibition in London.

He was the first state official to collect specimens of citrus canker and identify it as a disease. He took a leading part in the successful campaign to eradicate canker and the Mediterranean fruit fly, two pests which threatened the entire citrus industry. For many years he produced and distributed cultures of fungi to control whiteflies and scale insects and also raised Vedalia, a ladybeetle that preys on cottony cushion scale.

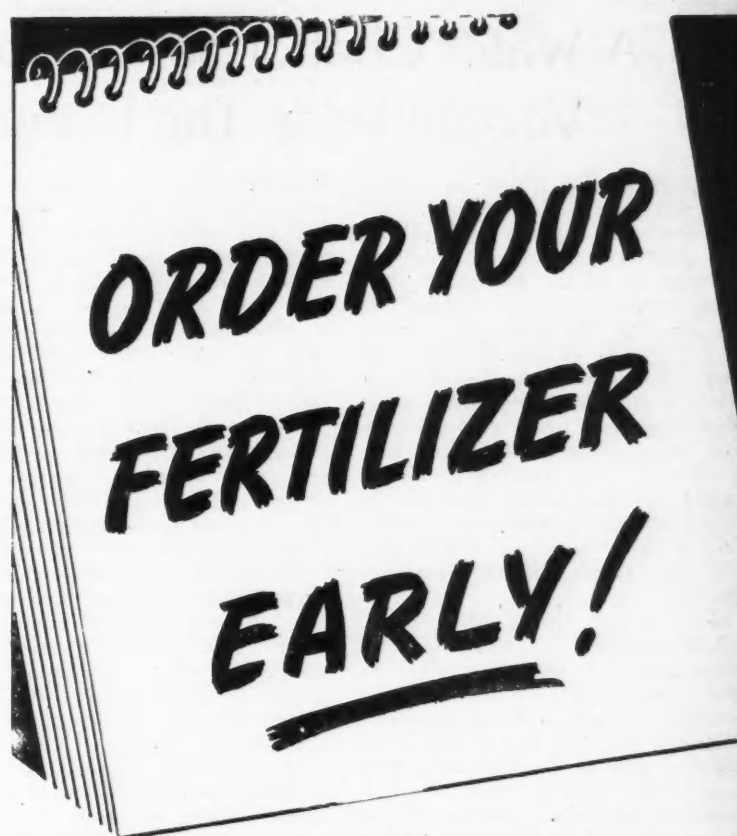
Dr. Berger was born in Berea, Ohio, Nov. 29, 1869. He received bachelor's degrees from Baldwin-Wallace College, Berea, and the doctor of philosophy degree from Johns Hopkins. He is survived by his widow, Mrs. Emily Muller Berger, one daughter, Mrs. E. G. Hume of Florala, Ala., and one granddaughter, Miss Peggy Hume.

He was a member and past president of the Florida Entomological Society, and a member of the American Association for the advancement of Science, Entomological Society of America, Florida State Horticultural Society, American Association of Economic Entomologists, Ohio Academy of Sciences, and Soil Science Society of Florida.

Burial was in Evergreen cemetery in Gainesville.

Charlotte County families are out to improve their home fruit supplies. They bought 300 citrus trees for backyard plantings recently, according to County Agent N. H. McQueen.

Despite hot weather, canning of food for home use showed a marked increase in St. Lucie County during the past month. More than 2,000 cans were filled at the center in Fort Pierce, and a great deal of canning was done in homes, according to Miss Mary Dixon, home agent.



Like most every other industry, fertilizer manufacturers are faced with a manpower shortage — a shortage that may seriously disrupt shipping schedules during the season just ahead.

Now, when prompt shipments are possible, is the time to order your fall fertilizer. Anticipating early deliveries, we have stocked our factories with ample quantities of materials — all of highest quality, properly cured and ready to be made into Gulf Brands.

Don't wait. Place your fertilizer order immediately. Authorize an early shipping date. If you have storage facilities, it will be to your advantage to take delivery of your entire fall requirements NOW!

For Everything that
Grows in Florida...use
GULF Brands of



FERTILIZER

The Gulf Fertilizer Company

Tampa and Port Everglades, Florida

A Water Control Set-Up For Citrus And Vegetables In The Everglades....

PAUL HOENSHEL, STUART
At Meeting of
Florida State Horticultural Society

With a production of 13,000 carloads of vegetables and over one hundred million pounds of raw sugar annually, it is evident that some practical form of water control has been achieved in the Everglades. The popular impression seems to be that this has been done by the state and federal agencies but this is erroneous. No sound agricultural development was possible so long as the gravity canals, dug many years ago, were depended upon for drainage. Also, the multi-million dollar dike constructed by the U. S. Government around Lake Okeechobee may prevent a repetition of the 1928 hurricane disaster in which thousands of lives were lost, but it does nothing to make farming in the 'Glades any less hazardous.

The water control system which makes the present amazing production possible was evolved over a period of years by the land owners themselves by a trial-and-error method. First attempts were in the form of sub-drainage districts, formed and heavily bonded to provide the necessary flood control on certain areas. These first districts underwent the usual troubles of pioneers but a practical answer to the water control problem was eventually worked out. As soon as the control methods were proven feasible by the districts, large numbers of large scale farmers and corporations installed and operated their own systems, patterned on those used by the sub-drainage districts. The present water control system is practically standardized and embraces three main points:

1. Enclosure of the area to be developed by muck dikes and the construction of canals inside the dikes to collect and carry flood waters to the pumping stations. At first, muck dikes were constantly breaking but with improved engineering this trouble has been largely eliminated. Seepage through the dikes is not excessive and they have proved to be a practical form of construction.

2. Large capacity drainage pumps to discharge excess water outside the dikes. These pumps are of various types and sizes but a capacity of 2,000,000 g. p. h. is about average. Present day developments usually are designed to remove about three inches of water in twenty-four hours.

3. The mole drain. The deep, level vegetable and sugar cane lands readily absorb large volumes of water, and once saturated, are difficult to dry out. The same slow lateral movement of the water through muck which made the muck dike possible also made drainage of excess water into the canals so slow that only the edges of fields adjacent to canals had any real

protection. The mole drain was the answer to this problem. As its name implies, this is a mole-like opening in the subsoil, formed by a clumsy looking but efficient machine, the essential parts of which are a steel blade which can be inserted vertically into the muck to any desired depth and a metal plug or "mole," about six inches in diameter, attached to the lower end of the blade. When this machine is drawn across the field by a heavy tractor, the plug compresses the semi-plastic subsoil to form an opening which remains after the passage of the mole. These drains discharge into open ditches and function the same as the conventional tile drain. Spacing of these drains varies, but average depth below the ground level is about two and one-half feet. Distance apart will vary from ten to twenty feet. Under favorable conditions these moles will remain in serviceable condition for several years but growers of annual crops as a rule "mole" their lands each season.

At first water control was confined to providing drainage, but with the expansion in the growing of celery and other crops requiring irrigation growers rapidly became irrigation conscious and most developments now have some provision for pumping water into their canals for distribution through the soil by the moles.

An entirely different problem is the development at Port Mayaca, primarily devoted to orange groves. This is very irregular land, including all types of soil from muck to flatwoods sand. It has a general slope from northeast to southwest with an extreme difference in elevation of about ten feet. Five hundred acres of the total six hundred in Valencia oranges are planted on an intermediate type of soil which originally had from a few inches to a foot of muck underlaid with sand but which after plowing and bedding for grove resembled a sandy hammock soil. The slope of this land as well as its impervious subsoil of marl and rock makes any kind of sub-irrigation impossible and drainage is entirely by surface runoff.

The canal layout consists of a main north-and-south canal, discharging into the St. Lucie canal, dug on the approximate dividing line between those lands which can be normally drained by gravity and those so low that drainage must be by pumps. Four east-and-west lateral canals intersect the main canal at intervals of one-half mile. Spillways are provided wherever necessary to compensate for differences in elevation, and electrically driven lift pumps raise water for irrigation to each level as required. By means of these spillways and

pumps, and equalizing canals connecting laterals on each level, it is possible to maintain a reasonably uniform water level in all canals in both wet and dry weather. Drainage of the area too low for gravity drainage is by means of four small pumps, installed at three points with a combined discharge of 2,000,000 g. p. h.

Irrigation water is supplied by a primary lift pump of 900,000 g. p. h. capacity, which irrigates all groves on the first level and furnishes water for the secondary lift pump of 600,000 g. p. h. This irrigates all groves on the second level and supplies water for the third pump of 350,000 g. p. h. These pumps have supplied adequate water for long dry periods, although in extreme cases it is necessary to operate them on a 24-hour-day basis.

The unit of development is a twenty acre tract, 660 by 1320 feet, with each tract fronting on a lateral canal for 660 feet. Each unit is surrounded by a ditch dug by a dragline, the spoil from which combined with that of the adjoining tract forms a dike and roadway around the unit. As the land slopes from the east to the west, the east ditch is used primarily for irrigation and the west ditch for drainage. To facilitate both drainage and irrigation the orange trees are planted on low beds running with the slope from east to west.

A permanent wood box type pump is mounted in the middle of the canal so that one pump can serve two tracts. Each tract is connected with the pump by means of an 18" culvert through the canal bank at an elevation low enough to permit gravity drainage through the culvert and pump box. An outlet gate in the side of the pump box is provided for the discharge of drainage water. By means of a single steel gate in the pump it is possible to pump into either tract at will, or to pump into both tracts at once. In irrigating a grove tract, the pump is driven by a tractor on the canal bank and water forced by means of a concrete control box in the field ditch to flow into the irrigation ditch. This ditch is closed at the end of the field furthest from the pump, so the water level rises until it is high enough to flow into the water furrows between each two tree rows. As the ground is kept covered by a dense growth of grass and cover crop, movement of the water down the slope is very slow and it spreads out until about half the space between the tree rows is covered. When water from the majority of furrows begins to flow into the drainage ditch, which will normally require from four to nine hours, irrigation is considered complete. Water is held in the tract by

a steel gate in the control box until the next day, when the gate is removed and the excess water drained back into the canal. As the pump will deliver about 250,000 g. p. h. at the average heads, total water applied at an irrigation will run from one to two million gallons, depending upon conditions. Due to the cover crop there is no erosion problem.

Cost of electricity for operation of lift pumps will run about a dollar a million gallons for each lift. Labor and fuel cost of operating tractor pump will approximate \$4.00 per million gallons, which gives a total cost of five to six dollars per million gallons, depending on whether it is first or second level. This is operating cost only and does not include maintenance, depreciation or overhead.

Orange production of this grove for the current season was about 120,000 boxes.

THE FARM AND GROVE MACHINERY SITUATION (Continued from page 7)

very helpful as some of this equipment began to arrive last fall. For 1945 the allocations are already made and manufacturers will begin in July. This all tends to improve the production schedule both as to quantity and as to the time it can be made available. The farmers, manufacturers and dealers have been on the whole very patient and cooperative and this has all helped to make the program operate as well as it has. We believe the 1945 situation will be still better, as more machinery will be manufactured and thus rationing procedure becomes less needed and can be further simplified. There will however not be enough machinery for everyone to have all he wants and equipment now on hand should be kept in repair and used so long as it will operate. In the machinery program the committee responsible for rationing have faced many problems and they have tried to do a job that would make the available equipment serve best in the food production program. Caretakers, custom operators, and those in position most effectively to use equipment to its maximum capacity were given the consideration their operations warranted.

I think I can report to you that the farm machinery situation has been steadily improving from all standpoints: the manufacturer, the distribution system (including the rationing part) and the realization and knowledge farmers now have relating to the program, the problems and how the whole thing works.

Crawler Type Tractors

It might be well to mention crawler-type tractors, which are not included in the regular machinery rationing program.

Crawler-type tractors for agriculture are needed on muck lands and for certain types of work such as land clearing and pasture improvements. They are allocated directly by the War Production Board as follows:

A purchaser is assisted by his dealer in filing an application with his county AAA Committee. The committee reviews and recommends or disapproves the application. The application then comes to the state committee. The state committee gets a quota each quarter by makes and sizes of crawler-type tractors. The committee considers all applications on file and recommends a sufficient number, that in its judgment are the most worthy cases, to fill the quotas permitted each month and sends these applications on to Washington where they receive further consideration by the War Food Administration before they finally reach WPB which finally grants approval or disapproval. The state committee then submits on appeal, in excess of the quota, some additional applications for the most worthy or urgent cases and holds the balance for consideration during the next quota period. The quotas are very small and often the makes listed in the quota are not available and substitutions may be offered, and also very often some sizes and makes desired are not in the quota.

WPB has to make distribution to the military forces, to industrial users, and to agricultural uses and the quantity available is greatly below the number needed. At times the military forces may take everything available of certain types and sizes.

Our farmers prefer certain makes be-

cause of facilities available for service; also they usually want the larger sizes and wide tracks. It seems the military forces also need large quantities of the same type of equipment Florida farmers need. The supply situation began to show some indication of easing but invasion preparations have removed this and for the near future anything except some of the very small crawler tractors will be very hard to get.

Farm Trucks


In conclusion I'll say just a few words about farm trucks.

The farm trucks program and the supply situation are of importance to farmers; however, I will not attempt to cover this fully but will call attention to a few points. Trucks are scarce and somewhat difficult to obtain.

If a farmer needs a truck it is not sufficient to fill out an application properly. The main thing is to establish a real need for the truck and to give full information regarding the crops or other products to be hauled. If a farmer does not have enough of his own products to haul to require full use of the truck applied for, he should get neighbors who have products to haul to sign pooling agreements and attach these to his application.

Trucks now in use are wearing out and good mechanics are becoming fewer all the

(Continued on page 18)



SCIENTIFIC
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PEST CONTROL

DEPENDABLE

The citrus growers of Florida, Alabama and Louisiana have learned by profitable experience that they can depend upon **ORTHO** sprays to give their fruit the kind of protection that brings their fruit through clean of scale, sooty mold fungus, white fly and red spider.

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FLORIDA VOLCK *

This highly refined phytonomic foliage oil spray is an effective inhibitor of scale insects, white fly and red spider. It is the foundation of a thorough program to control of these pests.

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Reports of Lyons Field Men . . .

SOUTHWEST FLORIDA

F. W. (Felton) Scott

The vegetable growers in this section are preparing their land for the approaching fall plantings. Indications are that the crop will be about the usual acreage. Growers are a little apprehensive however, regarding labor problems and the prices that they will receive for their various commodities. We had an extremely dry spring in this section and the growers suffered accordingly, which will result in a much lighter crop of fruit than was at first anticipated. In most cases during the dry weather scale insects got ahead of our controlling oil spray program. Rains in July were beneficial and groves have responded beautifully since that time. However, due to the drought fruit is still immature and the marketing season will be later than last year.

WEST CENTRAL FLORIDA

E. A. (Mac) McCartney

With few exceptions there is a very good crop of fruit throughout this territory and this is especially true in the case of tangerines — in fact, there is an unusually heavy crop of this variety of fruit. Groves are in better condition at this time than we have ever seen them before with a nice new growth free of melanose and otherwise in top shape. Hernando county is starting a program of pasture development that will certainly result in better grazing for cattle and will be an economical procedure for the cattlemen as they will feed more cows per acre, have better stock and be able to place them on the market in a shorter period of time. Growers throughout the territory are improving their properties in every way possible. Doc Ferris of Floral City one of the our prominent growers recently finished drilling a well on his property and plans to have others in operation as soon as possible.

NORTH CENTRAL FLORIDA

V. E. (Val) Bourland

During recent weeks we have been getting plenty of rain and groves are looking very good. Fruit is sizing up nicely and

every indication at this time is that our season will start somewhat earlier than it did last year. Packing houses throughout the territory are getting ready for the approaching season. We are having a great deal of trouble with scale and due to rains of past month we haven't been able to get along with oil sprays as fast as we would like to to get the scale under control. Rust mite are also extremely active in this section. Cover crops are better than we have had for years. We had considerable July bloom up here and a large percentage of it is growing in fine shape. Winter Garden vegetable growers are getting their land prepared for fall season planting. Seed beds are doing nicely.

POLK COUNTY

J. M. (Jim) Sample

Every year when the Department of Agriculture starts making their crop estimates and come out with the statement that Florida citrus will show an increase over the year before there generally is a howl from growers. This year is no exception and we are no expert in estimating how much fruit will be picked but it is a pretty safe bet that our production will show an increase this year over the past season. Groves have done extremely well in this county during the summer months. They have put on a very nice new growth, they have sized fruit very nice and every indication at this time is that we are going to offer the trade this fall and next spring some real quality fruit. Scale insects have been very hard to get under control with some growers finding it necessary to use an oil spray the second time. In fact there are some groves that will receive an application of oil in September for the third time. We have talked with a number of packers recently and they are anxious to get their operations under way to spread the shipping season over a long period of time.

POLK COUNTY

J. B. (Jeff) Britt

Prospects for the coming citrus season are bright. Ample rains

during July and continuing into August improved the condition of all varieties of citrus and also the quality of the fruit. There are a number of groves showing considerable late bloom that apparently will develop into real quality fruit. Scale has been causing growers considerable trouble and rust mite are very active at the present time. Cover crops have been chopped in most groves.

SOUTH CENTRAL FLORIDA

H. C. (Cullie) Collins

Growers throughout this territory have had a hard fight all summer with scale insects and rust mite. However, at this time it appears that the grower is the winner as we have both of these pests under control and many of our growers are taking a much needed vacation. We have had copious rains during the past month and all citrus trees are showing considerable benefit from water. Indications are that we will have a fine crop of quality fruit this season. The cuke growers in the Wauchula area have asked the OPA to establish a ceiling on all fall crops in order that they might know how to plan their acreage. The acreage of fall vegetable crops is expected to be about the same as last season.

HILLSBOROUGH & PINELLAS COUNTIES

C. S. (Charlie) Little

After a very dry spring and also early summer we have been getting plenty of rain in recent weeks and it certainly has made a difference in the appearance of citrus groves throughout this section. Our cover crops have been growing very fine and most growers are now cutting them down. This is necessary in many cases in order that spray machines can operate in the grove. Our fruit is now sizing up in good shape and we should have some fine fruit ready to go to market before many more weeks have passed. Scale has been bad and we will continue with oil sprays up into September to bring these pests under control. Rust mite have been bad and we have a very severe infestation in many groves at the present time.



Reckon most of us fellers in the grove business realize we been pretty well off the past couple a years so for as fruit prices is concerned, and if we're smart as we oughta be we'll sorta grab every chance to reap another good harvest this season.

One thing most all us growers know is that raisin' good fruit — in fact these technical fellers call it quality fruit — is just about the best investment a grower can make these days. The folks up north who eat our oranges and grapefruit has got educated, 'specially in the last few years and you can't fool 'em any more. They know good fruit now days and what's more they got the money to pay for it, so if we'll just raise that sort of fruit and not ship 'em any that's green or not up to par we ain't goin' to have too much trouble with this year's prices.

When you git right down to it us growers know that a lot of fruit that don't look so good on the outside is just plum loaded down with fine, rich juice inside, and that's where our canner people come in handy. They sell the inside of the fruit and their customers get a bargain, too.

Raisin' citrus and cows may not seem to go together, but we was checkin' up the other day and wasn't too surprised to note that some of the biggest fruit growers in this state are our biggest cattlemen too. Reckon the fact that there's good money in both crops when handled right helps supply the answer.

Probably the biggest thing that's happened in the cow business since we can recollect is the recent practice of these cow men in building up high class pastures by usin' good fertilizer. Fact they is folks now who claim you can fertilize the land and the cows at the same time, helpin' 'em both to be better. Anyway they has been a lot of pastures sweetened up by the use of proper fertilizers and the pay-off comes when the cattle begin to fatten up on these good pastures.

We could be wrong but it's our guess that the Florida citrus grower and the Florida cow man are better off today than they've ever been before. One good thing about the citrus grower is that the extra money he's been makin' has sorta inspired him to get his groves in mighty good shape — better, in fact, than ever since they started growin' citrus in Florida. The cow men are not only improvin' their pastures, they're improvin' their herds too.

Looks like the farmer in Florida was pretty well set for whatever comes after we lick the livin' daylight, out of the Nasty Nazis and the Jackal Japs.

A lot of growers has had a tough time gettin' boxes to ship their fruit in, and while WPB or somebody says they is liftin' the ban off boxes they ain't said how the grower can get the lumber to make 'em, so they is apt to be a lot fruit shipped in second hand boxes this year, but that won't hurt the fruit none.

While we was talkin' about the fruit man and the cattle man a minute ago we ain't forgettin' the vegetable grower. Most of these folks are analyzing their soils more ever year and raisin' the best crops we ever saw. They are gettin' ready for a bumper crop and if the weather'll play with 'em they'll be in the money this year.

UNCLE BILL.

Mowry Gives Salient Points In War-Time Work of Station; Pledges Continued Efforts

A summary of high points in the war-time work of the Florida Agricultural Experiment Station and a pledge that its workers will continue to do everything in their power to help win the war were given recently by Director Harold Mowry.

"While we have concentrated on rather quick solution of war-time problems and development of new ways of increasing Florida's service to the Nation, much of the assistance we have been able to give the farmers, growers, and cattlemen has been the result of painstaking and effective research over a long period of time," Mr. Mowry said.

He pointed out that results of years of Experiment Station research in fertilizing, culture, adaptability of crops and varieties of soil types, pest control, and other phases of agricultural production enabled farmers and growers to produce the largest crops of fruits and vegetables in the history of the state during the past three years. Knowledge accumulated in a similar way in the fields of animal husbandry, poultry, and dairying also made it possible for producers of beef, pork, eggs, poultry meat, and milk to break all their past production records to help meet enormous war-time needs.

Cultural practices developed by the Experiment Station have made it possible for citrus growers to vastly increase their production with practically no increase in cost.

Significant research of the Experiment Station developing or completed since the station went on a war-time basis include the following:

Extensive tests with fertilizers to enable farmers to adjust fertilization practices to available supplies and kinds of materials.

A greatly expanded pasture research program to help dairymen and livestock men increase and improve their pastures so they could fill the gap in short feed supplies.

Tests with many kinds of feed to determine how they could be used alone or in combination with others in feed adjustments. Work with citrus molasses, which proved to be as good as blackstrap, was typical.

Development of a process by which orange juice is concentrated by centrifuging and freezing, making it possible to concentrate the juice from a 100-pound box of oranges into a 10-pound package.

In addition to its close cooperation with farmers and growers, the Experiment Station has assisted army and navy establishments in planting grass for lawns and grounds, and air field runways in Florida, Georgia and Cuba. Station agronomists ad-

vised military officials on the kinds of grasses best suited to their locations and purposes and on fertilization and care of the grass.

Experiment Station workers have continued a practice of years of helping agricultural workers of the Latin-American countries applying to them for assistance and advice on crops and livestock. Representatives of these countries have visited the station to confer with its scientists and have called on the institution many times during the past three years by correspondence for assistance.

"These are only a few of the war-time activities of the Experiment Station, but we feel that they indicate the efforts of our workers are making to help win the war,"

Director Mowry said. "We will continue to help in every way we can, and we invite anyone who has an agricultural problem to call on us for assistance."

THE FARM AND GROVE

MACHINERY SITUATION

(Continued from page 15)

time; however, most of these trucks must be kept in operation for a good long time, and so they should be given the best possible care and conserved to the limit.

The 1944 production schedule contemplates 64,000 medium class trucks, 24,000 heavy trucks and 28,000 trailers. Only one-fourth of these are scheduled for production the first half of 1944. The stockpile of new 1941 model trucks has practically been exhausted. A better supply situation for parts is expected but they will be difficult for the older models. Used parts are also getting to be pretty scarce.

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The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

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"ATTENTION!" Wanted information as to where I can find an entire tree or sport branch producing Naveled Grapefruit; fruits showing navel. Also persons having any type of **VARIEGATED** citrus trees. Reasonable prices will be paid for budwood of such freak plants. Will purchase from Nurserymen any variegated seedlings from seedbeds. Wanted particularly information as to where can be found old Seedlings producing seedless fruits of very early maturity. **Royal Purple Citrus Research Nursery, Orlando, Florida.**

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Florida Agricultural Laboratory — Babson Park, Fla. Soil analyses and consultation on problems and programs. Consultant in Agricultural Processing and By-Products.

New Committee Members Named

Members and alternates of the Growers' Administrative and the Shippers' Advisory committees were named recently by the War Food Administration to serve under the Florida Citrus Marketing Agreement and Order Program during the next year starting Aug. 1, 1944 and ending July 31, 1945.

Membership of the committees is about the same as for the previous year except for one new member and two alternates on the Growers' committee and two new members and two new alternates on the Shippers' committee. Richard M. Clewis, jr., of Tampa is a new member and Dallas J. Simmons of Bradenton and Charles L. Rocker of Lakeland are new alternates of the Growers' committee while John R. Bynum of Titusville and Gaynor Wiggins of Orlando are new members and A. Saurman of Clearwater and Frank E. Sullivan of Cocoa are new alternates of the Shippers' committee. Mr. Bynum has served previously on the Shippers' committee and Mr. Saurman was formerly a member of the Growers' committee.

It is the duty of the Shippers Advisory committee to make recommendations to the Growers Administrative committee, when it is deemed advisable, for limiting the movement of certain grades and sizes to interstate commerce. It is the duty of the Growers Administrative committee to transmit the recommendation of the Shippers Advisory committee, together with its own recommendation for limiting interstate shipments, to the Director of Distribution and, in addition, it serves as the official body for administering the marketing agreement program.

The committees, their members and alternates, include the following:

Growers Administrative Committee

District 1: Mr. Clewis, member; Mr. Simmons, alternate. District 2: J. N. Mowery, Eustis, member; O. M. Simpson, Mt. Dora, alternate. District 3: G. H. Morthland, Weirsdale, member; F. W. Cawthon, Weirsdale, alternate. District 5: T. C. Hawthorne, Ocoee, member; C. F. Fawcett, jr., Orlando, alternate. District 5: A. W. Young, Vero Beach, member; James A. Martell, Vero Beach, alternate. District 6: C. H. Walker, Avon Park, member; Jeff Flake, Wauchula, alternate.

District 7: Harry L. Askew, Lakeland, and Fred T. Henderson, Winter Haven, members; Mr. Rocker and Thomas B. Swann, Winter Haven, alternates.

Shippers Advisory Committee

Members — W. C. Pedersen, Waverly; J. M. Morrow, Auburn-dale; Fred S. Johnston, Tampa; Mr. Bynum; John M. Campbell, Lees-

burg; W. A. Stanford, Lake Alfred; Mr. Wiggins; Albert Connelly, Orlando.

Alternates — Fred W. Davis, Lake Wales; Mr. Saurman; John B. Rust, Winter Haven; Mr. Sullivan; Gerald J. Egan, Clermont; John A. Snively, jr., Winter Haven; S. C. Battaglia, Orlando; C. V. Griffin, Howey.

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